



Principal Investigator/Program Director (Last, first, middle):

Butcher, Eugene

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BIOGRAPHICAL SKETCH

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Provide the following information for the key personnel in the order listed on Form Page 2.

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TECH CENTER 1600/2900

Name
Eugene C. Butcher, MD

POSITION TITLE

Professor of Pathology

EDUCATION (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Massachusetts Institute of Technology	BS	1972	Chemistry
Washington University, St. Louis, Missouri	MD	1976	

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

7/76 - 6/77 Residency in Pathology (Anatomic), Dept. of Pathology, Stanford University Medical Center
7/77 - 6/79 NIH Postdoctoral Fellowship, Department of Pathology, Stanford University
7/79 - 7/80 Residency in Pathology (Anatomic), Dept. of Pathology, Stanford University
7/80 - 7/82 Sr Fellow, American Cancer Society, Calif. Div., Dept of Pathology, Stanford University
9/82 - 9/89 Asst. Professor, Dept. of Pathology, Stanford University Medical Center
9/82 - present Staff Physician, VA Palo Alto Health Care System (5/8 FTE appointment, ~80% research, 20% clinical).
9/89 - 6/99 Associate Professor, (3/8 FTE appointment, ~80% research, 20% clinical and teaching)
6/99 - present Professor, (3/8 FTE appointment, ~80% research, 20% clinical and teaching)

Selected Honors and Awards:

- 1) Eloranta Award (MIT)
- 2) PLU (Honorary Chemistry Society)
- 3) Phi Beta Kappa
- 4) Richard S. Brookings Award for Excellence in Medical Student Research
- 5) Scholar, Leukemia Society of America (July 1, 1982 through June 30, 1987)
- 6) Member, AAP and AAI
- 7) Associate Editor, Journal of Immunology (past)
- 8) Established Investigator, American Heart Assoc. (July 1, 1987 through June 30, 1992)
- 9) Warner Lambert/Parke Davis Award (3/89)
- 10) Burroughs Wellcome Visiting Professorship (U. New Mexico, 1996).
- 11) AAI-Huang Foundation Meritorious Career Award- 1999
- 12) Middleton Award for Outstanding VA Investigator - 2001

Publications:

29. Gallatin WM, Weissman IL, Butcher EC. A cell-surface molecule involved in organ-specific homing of lymphocytes. *Nature* 303:30, 1983.
61. Jalkanen S, Steere AC, Fox RI, Butcher EC. A distinct endothelial cell recognition system that controls lymphocyte traffic into inflamed synovium. *Science* 233:556, 1986.
80. Streeter PR, Berg EL, Rouse BN, Bargatze RF, Butcher EC. A tissue-specific endothelial cell molecule involved in lymphocyte homing. *Nature* 331:41, 1988
99. Goldstein L, Zhou DFH, Picker L, Minty C, Bargatze RF, Ding JF and Butcher EC. A human lymphocyte homing receptor, the Hermes antigen, is related to cartilage proteoglycan core and link proteins. *Cell* 56: 1063, 1989.
110. Kishimoto TK, Jutila MA, Berg EL and Butcher EC. The neutrophil Mac-1 and MEL- 14 glycoproteins are inversely regulated by chemotactic factors. *Science* 245:1238, 1989.
123. Picker LJ, Kishimoto TK, Smith CW, Warnock RA, Butcher EC. ELAM-1 is an adhesion molecule for skin-homing T cells. *Nature* 349:796, 1991.

131. von Andrian UH, Chambers JD, McEvoy L, Bargatze RF, Arfors K-E and Butcher EC. A two step model of leukocyte-endothelial cell interaction in inflammation: Distinct roles for LECAM-1 and the leukocyte $\beta 2$ integrins *in vivo*. *PNAS*, pp. 7538, 1991..
140. Butcher EC. Leukocyte-endothelial cell recognition: Three (or more) steps to specificity and diversity. *Cell* 67:1033, 1991.
146. Briskin MJ, McEvoy LM, Butcher EC. MAdCAM-1 has homology to immunoglobulin and mucin-like adhesion receptors and to IgA1. *Nature* 363:461, 1993.
151. Berlin C, Berg EL, Briskin MJ, Andrew DP, Kilshaw PJ, Holzmann B, Weissman IL, Hamann A, Butcher EC. $\alpha 4 \beta 7$ integrin mediates lymphocyte binding to the mucosal vascular addressin MAdCAM-1. *Cell* 74: 185, 1993.
152. Berg EL, McEvoy LM, Berlin C, Bargatze RF, Butcher EC. L-selectin-mediated lymphocyte rolling on MAdCAM-1. *Nature* 366:695, 1993.
169. Bargatze RF, Jutila MA, Butcher EC. Distinct roles of L-selectin and integrins $\alpha 4 \beta 7$ and LFA-1 in lymphocyte homing to Peyer's patch-HEV *in situ*: The multi-step model confirmed and refined. *Immunity* 3:99, 1995.
178. von Andrian UH, Hasslen SR, Nelson RD, Erlandsen SL, Butcher EC. A central role for microvillous receptor presentation in leukocyte adhesion under flow. *Cell* 82:989, 1995.
159. Berlin C, Bargatze RF, Campbell JJ, von Andrian UH, Szabo MC, Hasslen SR, Nelson RD, Berg EL, Erlandsen SL, Butcher EC. $\alpha 4$ integrins mediate lymphocyte attachment and rolling under physiologic flow. *Cell* 80:413, 1995.
183. Laudanna C, Campbell JJ, Butcher EC. Rho mediates chemoattractant activation of leukocyte integrins. *Science* 271:981, 1996.
221. Foxman EF, Campbell JJ, Butcher EC. Multistep navigation and the combinatorial control of leukocyte chemotaxis. *J Cell Biol* 139:1349, 1997.
223. Campbell JJ, Hedrick J, Zlotnik A, Siani MA, Thompson DA, Butcher EC. Chemokines and the arrest of lymphocytes rolling under flow conditions. *Science* 279:381, 1998.
234. Butcher, EC, Williams, MB, Youngman, KR, Rott, L, Briskin, M. Lymphocyte trafficking and regional immunity. *Adv. Immunol.*, 72:209, 1999.
239. Campbell, JJ, Haraldsen, G, Pan, J, Rottman, J, Qin, S, Ponath, P, Warnke, R, Ruffing, N, Kassam, N, Wu, L, Butcher, EC. The chemokine receptor CCR4 in vascular recognition by cutaneous but not intestinal memory T cells. *Nature* 400:776, 1999.
242. Foxman, EF, Kunkel, EJ, Butcher, EC Integrating conflicting chemotactic signals: The role of memory in leukocyte navigation. *J Cell Biol* 147:577, 1999.
243. Warnock, RA, Campbell, JJ, Dorf, ME, McEvoy, LM, and Butcher, EC. The role of chemokines in the microenvironmental control of T vs. B cell arrest in Peyer's patch HEV. *J Exp Med*. 191:77, 2000.
244. Bowman, EP, Campbell, JJ, Soler, D, Dong, Z, Manlongat, N, Picarella, D, Butcher, EC. Developmental switches in chemokine response profiles during B-cell differentiation and maturation. *J Exp Med*. 191:1303, 2000.
249. Campbell, JJ, Butcher, EC. Chemokines in tissue-specific and microenvironment-specific lymphocyte homing. *Curr Opin Immunol*. 12:336, 2000.
251. Kunkel, E.J., Campbell, J.J., Haraldsen, Pan, J., Boisvert, J., Roberts, A.I., Ebert, E.C., Vierra, M.A., Goodman, S.B., Genovese, M.C., Wardlaw, A.J., Greenberg, H.B., Parker, C.M., Butcher, E.C., Andrew, D.P. and Agace, W.W. Lymphocyte CC chemokine receptor 9 and epithelial thymus-expressed chemokine (TECK) expression distinguish the small intestinal immune compartment: Epithelial expression of tissue-specific chemokines as an organizing principle in regional immunity. *J Exp Med*. 2000 Sept 4;192(5):761-767.
255. Kim, C.H., Kunkel, E.J., Boisvert, J., Johnston, B., Campbell, J.J., Genovese, M.C., Greenberg, H.B. and Butcher, E.C. Bonzo/CXCR6 expression defines type 1-polarized T-cell subsets with extralymphoid tissue homing potential. *J Clin. Invest*. 2001 107 595-601.
269. Constantin G, Majeed M, Giagulli C, Piccio L, Kim JY, Butcher EC, Laudanna C. Chemokines trigger immediate beta2 integrin affinity and mobility changes: differential regulation and roles in lymphocyte arrest under flow. *Immunity*. 2000 Dec;13(6):759-69.
277. Daniel J. Campbell, Chang H. Kim, and Eugene C. Butcher, Separable effector T cell populations specialized for B cell help and tissue inflammation, *Nature Immunology* 2001 Sep;2(9):876-81.
278. Kunkel EJ, Butcher EC. Chemokines and the tissue-specific migration of lymphocytes. *Immunity*. 2002 Jan;16(1):1-4. Review.

CCR9 and TECK in Intestinal Lymphocyte Trafficking

This grant we will study the tissue expression, regulation importance for intestinal lymphocyte trafficking at the level of diapedesis, and role in intestinal immunity of the chemokine TECK and its lymphocyte receptor, CCR9. TECK expression by intestinal epithelium but not endothelium leads us to propose its involvement in cell recruitment and positioning in the intestines after vascular recognition and arrest.

1/1/01 – 12/31/02

Aventis Pharma

Retroviral transduction of stem cells for biological characterization of chemokine and orphan leukocyte GPCR's